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# **2006 MICHIGAN FALL TURKEY HUNTER SURVEY**

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## **ABSTRACT**

*A survey of turkey hunters was conducted following the 2006 fall hunting season to determine turkey harvest and hunter participation. During the 2006 fall hunt, an estimated 17,400 hunters harvested about 4,800 turkeys. Harvest and hunter success (28%) in 2006 was similar to 2005. In addition, hunter satisfaction in 2006 was unchanged from 2005; about 60% of the hunters rated their hunting experience as excellent, very good, or good.*

## **INTRODUCTION**

Fall wild turkey (*Meleagris gallopavo*) hunting seasons were implemented in Michigan to maintain turkey populations at levels matching biological and social carrying capacities. In 2006, 14 management units totaling 31,935 square miles were open for fall turkey hunting during October 2-November 14 (Figure 1). The area open to hunting in 2006 was the same as in 2005.

People interested in obtaining a hunting license for the fall season could enter into a random license drawing conducted by the Department of Natural Resources (DNR). Applicants could choose one hunt area. Any licenses available after the drawing was completed were made available on a first-come, first-served basis to applicants unsuccessful in the drawing. Beginning one week after licenses were available to unsuccessful applicants, all remaining licenses were made available to nonapplicants. Leftover licenses were available for 12 management units (Table 1). Licenses for units GC, HA, HB, Q, T, and WA were valid on private lands only, while licenses for units G, GB, J, L, M, N, O, and W were valid on either land ownership types (i.e., public or private land). Hunters were allowed to take one turkey of either sex with the harvest tag issued with their license.



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The Natural Resources Commission and DNR have the authority and responsibility to protect and manage the wildlife resources of the state of Michigan. Harvest surveys are one of the management tools used to meet their statutory responsibility. Estimating harvest, hunting effort, and hunter satisfaction are among the primary objectives of these surveys.

## **METHODS**

The DNR provided hunters the option to voluntarily report information about their turkey hunting activity via the Internet. This option was advertised in the hunting regulations booklet. Hunters could report information anytime during the hunting season. Hunters reported whether they hunted, number of days spent afield, and whether they harvested a turkey. Successful hunters also were asked to report where their turkeys were taken (public or private land) and beard length of the harvested bird. Birds with a beard <4 inches long were classified as juveniles (<1 year old), while birds with longer beards were adults ( $\geq 1$  year old). Finally, hunters rated their overall hunting experience (excellent, very good, good, fair, or poor).

Following the 2006 fall turkey hunting season, a questionnaire was sent to 5,450 randomly selected people that had purchased a turkey hunting license (resident turkey, senior resident turkey, and nonresident turkey licenses) and had not already voluntarily reported harvest information via the Internet. Hunters receiving the questionnaire were asked to report the same information that was collected from hunters that reported voluntarily on the Internet.

Estimates were calculated using a stratified random sampling design that included 15 strata (Cochran 1977). Hunters were stratified based on the management unit where their license was valid (14 management units). Hunters that had voluntarily reported information about their hunting activity via the Internet before the mail survey sample was selected were treated as a separate stratum.

Because estimates were based on information collected from random samples of hunting license buyers, these estimates were subject to sampling errors (Cochran 1977). Thus, a 95% confidence limit (CL) was calculated for each estimate. In theory, this confidence limit can be added and subtracted from the estimate to calculate the 95% confidence interval. The confidence interval is a measure of the precision associated with the estimate and implies the true value would be within this interval 95 times out of 100. Unfortunately, there are several other possible sources of error in surveys that are probably more serious than theoretical calculations of sampling error. They include failure of participants to provide answers (nonresponse bias), question wording, and question order. It is very difficult to measure these biases; thus, estimates were not adjusted for these possible biases.

Statistical tests are used routinely to determine the likelihood that the differences among estimates are larger than expected by chance alone. The overlap of 95% confidence intervals was used to determine whether estimates differed. Non-overlapping 95% confidence intervals was equivalent to stating the difference between the means was

larger than would be expected 995 out of 1,000 times, if the study had been repeated (Payton et al. 2003).

Questionnaires were mailed initially during mid-November 2006, and up to two follow-up questionnaires were mailed to nonrespondents. Although 5,450 people were sent the questionnaire, 39 surveys were undeliverable resulting in an adjusted sample size of 5,411. Questionnaires were returned by 4,427 people, yielding an 82% adjusted response rate. In addition, 1,048 people voluntarily reported information about their hunting activity via the Internet.

## RESULTS

In 2006, the DNR offered 56,450 licenses for sale, and hunters purchased 21,951 licenses for the fall turkey hunting season (Table 1). Licensees included 13,672 people that were successful in the drawing for a license and 143 applicants that were unsuccessful in the drawing. In addition to the applicants, 8,136 people that had not entered into the drawing purchased a license.

The number of licenses sold in 2006 increased 3% from 2005. In 2006, about 17,390 hunters spent 104,445 days afield pursuing turkeys ( $\bar{x}$  = 6.0 days/hunter) and harvested 4,820 birds (Table 2). The number of people pursuing turkeys in 2006 did not change significantly from 2005. About 95% of the hunters that went afield were men ( $16,580 \pm 297$ ), and 5% of the hunters were women ( $810 \pm 132$ ). The average age of the license buyers was 47 years (Figure 2). About 6% of the license buyers were younger than 17 years old ( $1,252$ ).

Hunter success was 28% in 2006, same as in 2005. Harvest in 2006 did not change significantly from 2005 (Figure 3). Counties with hunters taking 200 or more turkeys in 2006 included Allegan and Delta (Table 3).

About 93% of turkey hunters hunted solely on private land, 4% hunted on public land only, and 2% hunted on both private and public lands (Table 4). Of the 4,820 turkeys harvested in 2006, 95% of these birds were taken on private land (4,565), while about 5% of the harvest (243) was taken on public land (Tables 5 and 6). Additionally, 12 birds were harvested from land of unknown ownership. About 55% of the harvested birds had a beard ( $2,647 \pm 219$ ). Most of these bearded birds (78%) were adults ( $2,059 \pm 198$ ); 21% were juvenile birds ( $565 \pm 101$ ).

Of the 17,390 turkey hunters in 2006, nearly  $60 \pm 2\%$  rated their hunting experience as either excellent ( $2,377 \pm 214$ ), very good ( $3,167 \pm 242$ ), or good ( $4,878 \pm 287$ ) (Table 7). About  $21 \pm 1\%$  of the hunters rated their experience as fair ( $3,658 \pm 258$  hunters), while  $17 \pm 1\%$  of the hunters rated their experience as poor ( $2,907 \pm 229$  hunters). Additionally, about 3% of the hunters ( $403 \pm 93$  hunters) failed to rate their hunting experience. Changes in hunter satisfaction generally parallel changes in hunter success (Figure 4). Between 2005 and 2006, hunter success and satisfaction were similar.

## **ACKNOWLEDGEMENTS**

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## **LITERATURE CITED**

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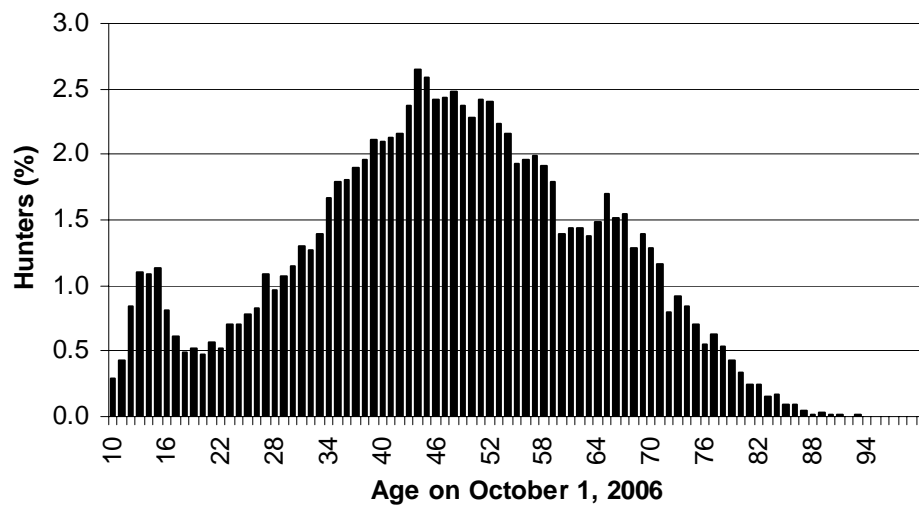


Figure 2. Age of people that purchased a turkey hunting license in Michigan for the 2006 fall hunting season ( $\bar{x} = 47$  years). Licenses were purchased by 21,951 people.

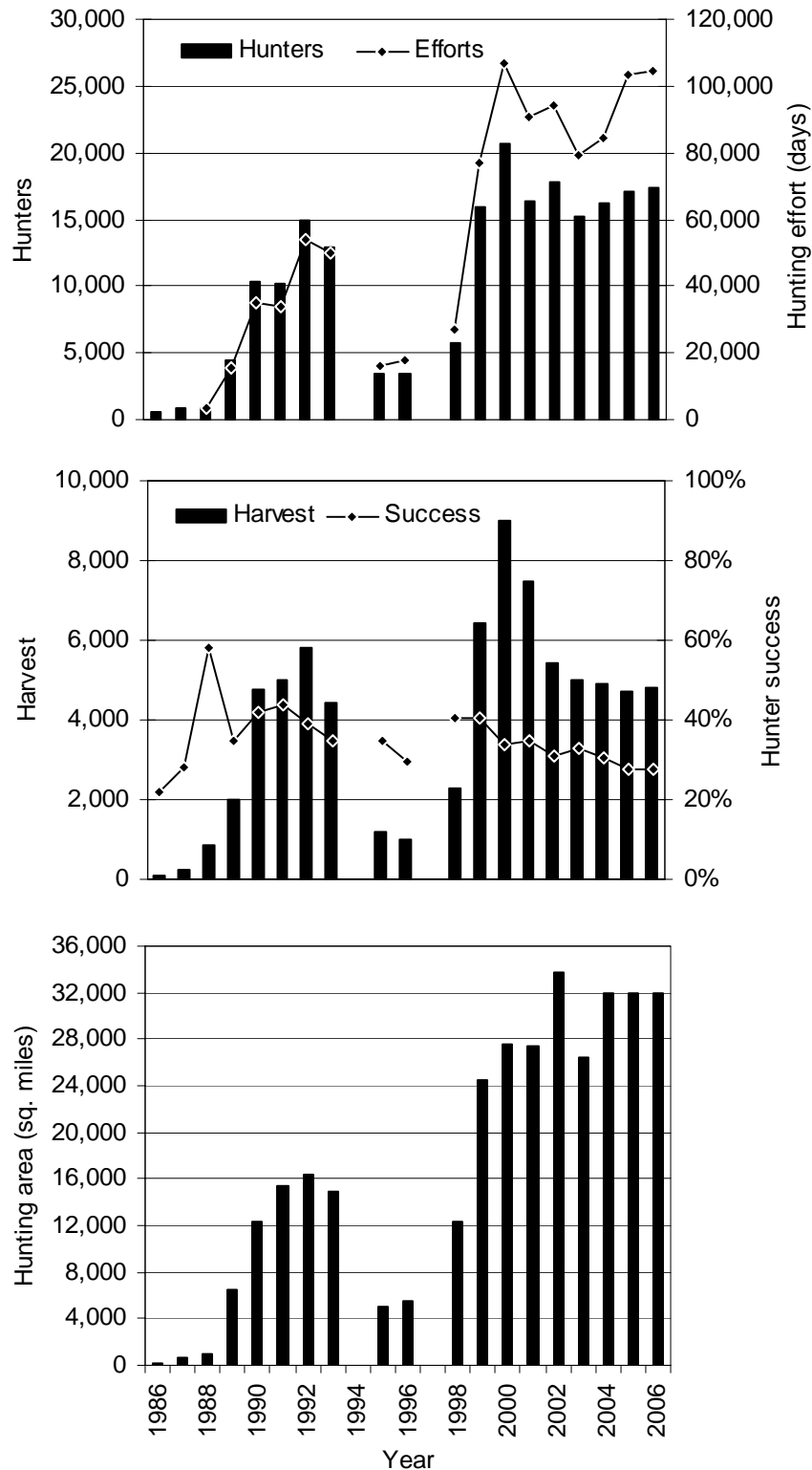


Figure 3. Number of hunters, harvest, hunting efforts, hunting success, and hunting area during the fall turkey hunting season, 1986-2006. Turkeys were not hunted during the fall in 1994 and 1997.

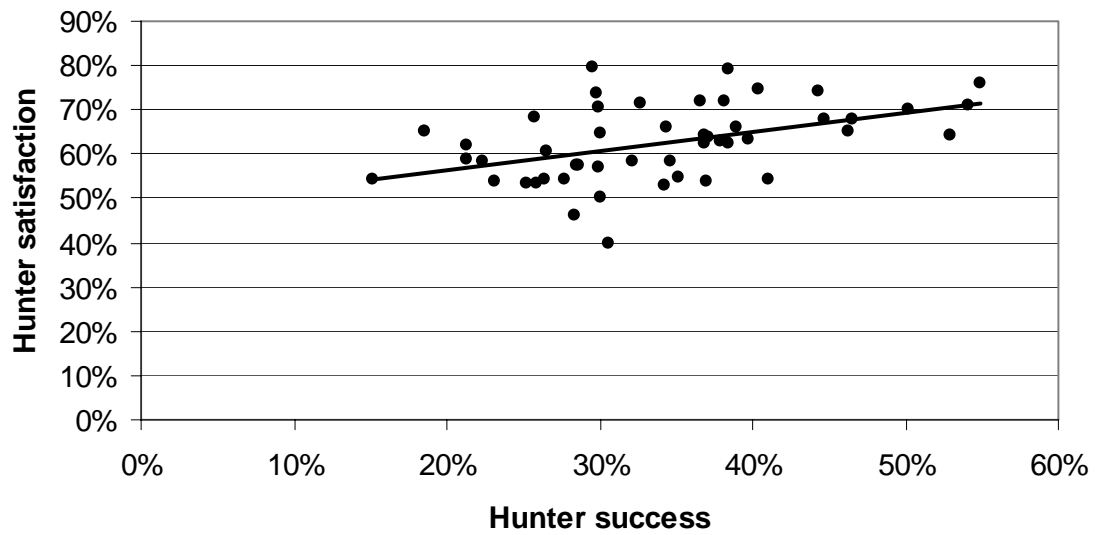


Figure 4. Hunter satisfaction (expressed as the percentage of hunters rating their hunting experience as excellent, very good, or good) associated with hunter success for each of 49 counties in Michigan during the 2006 fall turkey hunting season.



Table 1. Number of hunting licenses available and people applying for licenses during the 2006 Michigan fall turkey hunting season.

Management unit	Licenses available (quota) <sup>a</sup>	Number of eligible applicants	Number of applicants successful in drawing	Number of licenses purchased by successful applicants	Number of licenses remaining after drawing	Number of leftover licenses purchased by unsuccessful applicants	Number of leftover licenses purchased by people not in the drawing	Licenses sold
G	7,200	2,316	1,941	1,307	5,259	79	1,114	2,500
GB	4,250	1,453	1,424	971	2,826	11	704	1,686
GC <sup>b</sup>	5,000	3,082	3,082	2,025	1,918	9	1,642	3,676
HA <sup>b</sup>	1,000	1,033	1,000	675	0			675
HB <sup>b</sup>	600	433	433	301	167	1	144	446
J	2,000	1,927	1,927	1,159	73	4	58	1,221
L	21,000	3,732	3,732	2,632	17,268	8	2,830	5,470
M	1,400	250	250	177	1,150	2	144	323
N	1,800	331	331	235	1,469		138	373
O	2,500	646	646	424	1,854		309	733
Q <sup>b</sup>	3,000	2,529	2,529	1,651	471	16	419	2,086
T <sup>b</sup>	1,500	1,778	1,501	1,020	0	8		1,028
W	4,200	945	945	636	3,255	2	430	1,068
WA <sup>b</sup>	1,000	696	696	459	304	3	204	666
Statewide	56,450	21,151	20,437	13,672	36,013	143	8,136	21,951

<sup>a</sup>Quotas were assigned by hunts within each management unit.

<sup>b</sup>Licenses were valid on private lands only.

Table 2. Number of hunters, harvest, hunting success, and hunting efforts during the 2006 Michigan fall turkey hunting season.

Management unit	Hunters		Harvest		Hunting success		Hunting efforts (days)		Days per hunter ( $\bar{x}$ )	
	Total	95% CL	Total	95% CL	%	95% CL	Total	95% CL	Mean	95% CL
G	1,958	89	540	88	28	4	11,528	1,097	5.9	0.5
GB	1,327	59	404	60	30	4	7,913	759	6.0	0.5
GC <sup>a</sup>	2,855	139	711	130	25	4	17,788	1,875	6.2	0.6
HA <sup>a</sup>	555	21	147	22	27	4	3,052	296	5.5	0.5
HB <sup>a</sup>	351	16	81	15	23	4	1,941	203	5.5	0.5
J	931	44	253	41	27	4	5,091	548	5.5	0.5
L	4,423	189	1,109	190	25	4	27,784	2,753	6.3	0.6
M	236	12	97	13	41	5	1,411	142	6.0	0.5
N	296	13	102	13	34	4	1,255	119	4.2	0.4
O	608	25	279	32	46	5	2,976	284	4.9	0.4
Q <sup>a</sup>	1,606	75	415	70	26	4	10,493	1,075	6.5	0.6
T <sup>a</sup>	894	29	219	34	25	4	5,648	471	6.3	0.5
W	835	38	267	39	32	4	4,597	516	5.5	0.6
WA <sup>a</sup>	517	24	198	26	38	5	2,967	322	5.7	0.6
Statewide <sup>b</sup>	17,390	280	4,820	276	28	2	104,445	3,894	6.0	0.2

<sup>a</sup>Licenses were valid on private lands only.

<sup>b</sup>Column totals may not equal statewide totals because of rounding errors.

Table 3. Number of hunters, hunting effort, harvest, hunter success, and hunter satisfaction during the 2006 Michigan fall turkey hunting season, summarized by county.

County	Hunters <sup>a</sup>		Hunting efforts (days) <sup>a</sup>		Harvest <sup>a</sup>		Hunter success		Hunter satisfaction <sup>b</sup>	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL
Alger	29	13	141	78	9	7	30	20	74	20
Allegan	523	137	3,742	1,466	232	93	44	14	74	12
Antrim	224	39	1,322	324	68	23	31	9	40	9
Barry	585	145	3,832	1,272	151	76	26	11	68	12
Bay	55	16	221	81	30	12	54	15	71	14
Berrien	266	103	1,820	1,034	76	56	28	18	57	20
Branch	357	118	1,759	769	66	51	19	13	65	16
Calhoun	596	148	3,008	984	195	88	33	12	72	12
Cass	352	118	2,215	979	53	46	15	12	54	17
Charlevoix	99	27	443	161	27	14	28	13	54	14
Cheboygan	179	36	1,074	362	51	20	28	10	46	11
Clinton	344	74	1,529	438	77	37	22	10	59	11
Delta	410	32	1,923	273	217	30	53	6	64	6
Dickinson	236	12	1,411	142	97	13	41	5	54	5
Eaton	348	74	2,027	546	88	39	25	10	54	11
Emmet	93	27	446	157	34	17	37	15	54	15
Genesee	207	53	1,588	553	72	32	35	13	58	13
Gratiot	215	60	939	335	100	42	47	15	68	14
Hillsdale	286	87	1,785	718	86	50	30	15	70	14
Huron	178	32	1,106	265	38	16	21	8	62	10
Ingham	319	92	2,023	768	112	56	35	14	55	15

<sup>a</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

<sup>b</sup>Proportion of hunters that rated their hunting experience as excellent, very good, or good.

Table 3 (continued). Number of hunters, hunting effort, harvest, hunter success, and hunter satisfaction during the 2006 Michigan fall turkey hunting season, summarized by county.

County	Hunters <sup>a</sup>		Hunting efforts (days) <sup>a</sup>		Harvest <sup>a</sup>		Hunter success		Hunter satisfaction <sup>b</sup>	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL
Ionia	316	70	1,689	547	126	47	40	12	63	11
Isabella	292	40	1,815	407	131	29	45	8	68	7
Jackson	441	107	2,932	1,005	167	68	38	13	63	13
Kalamazoo	278	103	1,218	523	106	65	38	18	72	17
Kent	400	60	2,472	555	161	40	40	8	75	7
Lapeer	462	73	3,027	766	138	44	30	8	57	9
Lenawee	185	72	912	484	48	38	26	18	53	20
Livingston	285	85	1,685	784	92	50	32	15	59	15
Macomb	70	31	403	240	18	16	26	19	54	23
Marquette	78	20	412	123	43	15	55	13	76	12
Mecosta	351	16	1,941	203	81	15	23	4	54	5
Menominee	296	13	1,255	119	102	13	34	4	53	5
Midland	338	42	1,667	331	130	30	38	7	62	7
Montcalm	341	73	2,259	655	126	46	37	11	63	11
Muskegon	266	52	1,656	404	123	37	46	11	65	10
Newaygo	295	27	1,768	277	110	20	37	6	64	6
Oakland	183	50	1,088	364	68	31	37	14	64	14
Oceana	141	22	658	134	30	11	21	7	59	9
Otsego	226	40	1,010	249	68	24	30	9	50	10
Ottawa	302	55	1,578	447	89	32	30	9	80	8
Saginaw	291	28	1,781	297	146	23	50	6	70	6

<sup>a</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

<sup>b</sup>Proportion of hunters that rated their hunting experience as excellent, very good, or good.

Table 3 (continued). Number of hunters, hunting effort, harvest, hunter success, and hunter satisfaction during the 2006 Michigan fall turkey hunting season, summarized by county.

County	Hunters <sup>a</sup>		Hunting efforts (days) <sup>a</sup>		Harvest <sup>a</sup>		Hunter success		Hunter satisfaction <sup>b</sup>	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL
St. Clair	289	61	1,787	506	106	39	37	11	72	10
St. Joseph	192	88	1,403	1,089	51	46	27	21	61	23
Sanilac	283	37	1,811	334	97	25	34	7	66	7
Shiawassee	206	74	1,002	434	80	48	39	18	66	18
Tuscola	270	37	1,884	383	81	22	30	7	65	8
Van Buren	535	142	2,950	1,114	153	79	29	13	58	14
Washtenaw	255	84	1,499	702	98	53	38	17	79	13
Unknown	4,155	277	24,527	2,347	175	57	4	1	49	4

<sup>a</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

<sup>b</sup>Proportion of hunters that rated their hunting experience as excellent, very good, or good.

Table 4. Number and proportion of hunters hunting on private and public lands during the fall 2006 Michigan turkey hunting season.

Management unit	Private lands only				Public lands only				Both private and public lands				Unknown ownership			
	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL
G	1,903	92	97	2	31	21	2	1	24	21	1	1	0	0	0	0
GB	1,266	62	95	2	51	23	4	2	10	11	1	1	0	0	0	0
GC <sup>a</sup>	2,855	139	100	0	0	0	0	0	0	0	0	0	0	0	0	0
HA <sup>a</sup>	555	21	100	0	0	0	0	0	0	0	0	0	0	0	0	0
HB <sup>a</sup>	351	16	100	0	0	0	0	0	0	0	0	0	0	0	0	0
J	554	51	60	5	256	41	28	4	117	30	13	3	3	5	<1	1
L	4,175	203	94	2	143	72	3	2	105	65	2	1	0	0	0	0
M	132	14	56	5	55	10	24	4	49	10	21	4	0	0	0	0
N	244	15	82	4	22	7	7	2	30	9	10	3	0	0	0	0
O	396	32	65	5	138	25	23	4	69	19	11	3	5	6	1	1
Q <sup>a</sup>	1,606	75	100	0	0	0	0	0	0	0	0	0	0	0	0	0
T <sup>a</sup>	894	29	100	0	0	0	0	0	0	0	0	0	0	0	0	0
W	807	39	97	2	24	13	3	2	4	5	<1	1	0	0	0	0
WA <sup>a</sup>	517	24	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Statewide <sup>b</sup>	16,254	293	93	1	720	94	4	1	407	79	2	<1	8	8	<1	<1

<sup>a</sup>Licenses were valid on private lands only.

<sup>b</sup>Number of hunters may not equal statewide totals because of rounding errors.

Table 5. Statewide turkey harvest during the 2006 Michigan fall turkey hunting season, summarized by land ownership type and turkey sex and age.

Land ownership Turkey sex and age	Harvest	
	Total	95% CL
Private lands		
Males	2,546	216
Juveniles	528	97
Adults	1,995	196
Unknown	23	24
Females	2,009	189
Unknown sex	11	17
Subtotal – Private lands <sup>a</sup>	4,565	272
Public lands		
Males	92	38
Juveniles	35	26
Adults	57	28
Unknown	0	0
Females	151	45
Unknown sex	0	0
Subtotal – Public lands <sup>a</sup>	243	59
Unknown lands	12	8
Grand total <sup>a</sup>	4,820	276

<sup>a</sup>Column totals may not equal subtotals and grand total because of rounding errors.

Table 6. Number of turkeys harvested on private and public lands during the 2006 Michigan fall turkey hunting season.

Management unit	Private lands		Public lands		Unknown ownership	
	Total	95% CL	Total	95% CL	Total	95% CL
G	519	87	21	19	0	0
GB	395	60	9	11	0	0
GC <sup>a</sup>	711	130	0	0	0	0
HA <sup>a</sup>	147	22	0	0	0	0
HB <sup>a</sup>	81	15	0	0	0	0
J	191	37	58	21	3	5
L	1,055	186	54	46	0	0
M	67	11	28	7	2	2
N	88	13	12	5	2	2
O	222	30	52	17	5	6
Q <sup>a</sup>	415	70	0	0	0	0
T <sup>a</sup>	219	34	0	0	0	0
W	258	39	8	7	0	0
WA <sup>a</sup>	198	26	0	0	0	0
Statewide <sup>b</sup>	4,565	272	243	59	12	8

<sup>a</sup>Licenses were valid on private lands only.

<sup>b</sup>Column totals may not equal statewide total because of rounding errors.



Table 7. How hunters rated their hunting experience during the 2006 Michigan fall turkey hunting season.

Management unit	Satisfaction level (% of hunters)					
	Excellent	Very good	Good	Fair	Poor	No answer
G	15	15	29	20	18	3
GB	18	23	25	19	12	4
GC <sup>a</sup>	15	17	27	18	20	3
HA <sup>a</sup>	8	25	26	22	17	2
HB <sup>a</sup>	13	20	22	22	22	2
J	5	11	29	26	27	1
L	14	20	28	22	13	2
M	7	16	32	23	20	3
N	11	16	26	22	22	3
O	15	20	29	19	14	3
Q <sup>a</sup>	14	20	26	20	16	4
T <sup>a</sup>	11	20	28	21	18	1
W	14	13	34	21	15	3
WA <sup>a</sup>	17	15	35	19	11	3
Statewide	14	18	28	21	17	3

<sup>a</sup>Licenses were valid on private lands only.